

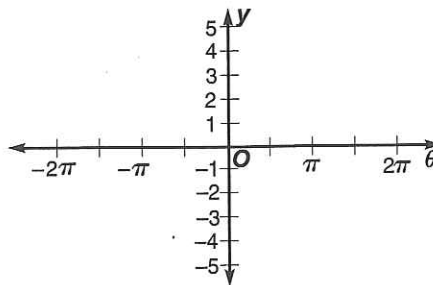
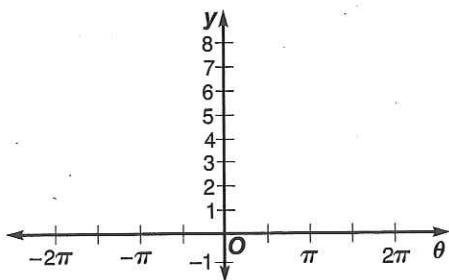
Practice

Translations of Sine and Cosine Functions

State the vertical shift and the equation of the midline for each function. Then graph each function.

1. $y = 4 \cos \theta + 4$

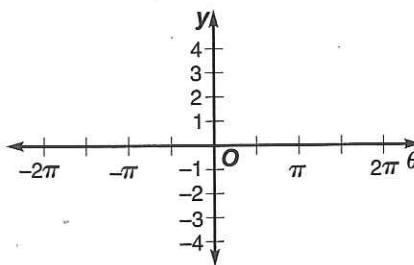
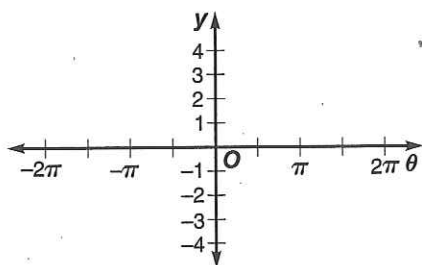
2. $y = \sin 2\theta - 2$



State the amplitude, period, phase shift, and vertical shift for each function. Then graph the function.

3. $y = 2 \sin \left(\theta + \frac{\pi}{2} \right) - 3$

4. $y = \frac{1}{2} \cos (2\theta - \pi) + 2$



Write an equation of the specified function with each amplitude, period, phase shift, and vertical shift.

5. sine function: amplitude = 15, period = 4π , phase shift = $\frac{\pi}{2}$, vertical shift = -10

6. cosine function: amplitude = $\frac{2}{3}$, period = $\frac{\pi}{3}$, phase shift = $-\frac{\pi}{3}$, vertical shift = 5

7. sine function: amplitude = 6, period = π , phase shift = 0, vertical shift = $-\frac{3}{2}$

State the phase shift for each function. Then graph each function.

1. $y = \sin(\theta - 2\pi)$

2. $y = 2\cos\left(\frac{\theta}{4} + \frac{\pi}{2}\right)$

State the vertical shift and the equation of the midline for each function. Then graph each function.

3. $y = 5\cos\theta - 4$

4. $y = 3\sin\frac{\theta}{2} + 4$

State the amplitude, period, phase shift, and vertical shift for each function. Then graph the function.

5. $y = 6\sin\left(\theta + \frac{\pi}{3}\right) + 2$

6. $y = 20 + 5\cos(3\theta + \pi)$

Write an equation of the sine function with each amplitude, period, phase shift, and vertical shift.

7. amplitude = 7, period = 3π , phase shift = π , vertical shift = -7

8. amplitude = $\frac{3}{4}$, period = $\frac{\pi}{5}$, phase shift = $-\pi$, vertical shift = $\frac{1}{4}$

Write an equation of the cosine function with each amplitude, period, phase shift, and vertical shift.

9. amplitude = $\frac{4}{5}$, period = $\frac{\pi}{6}$,

phase shift = $\frac{\pi}{3}$, vertical shift = $\frac{7}{5}$

10. Amplitude = 25, period = 20,

phase shift = 0, vertical shift = -90

11. Write a cosine equation for the graph at the right.

